

The Claims

1. A dispensing tip for use with precision dispensing apparatus for delivering controlled amounts
5 of fluid to a selected location comprising:

- a) a body having an inlet at one end adapted for connection in fluid communication with precision dispensing apparatus and having an outlet at another end of the body;
- 10 b) a fluid conducting passage in the body for connecting the inlet to the outlet, the passage having a first portion converging in a direction from the inlet to an intermediate location in the body and a second portion of constant diameter extending from the intermediate location to the outlet; and
- 15 c) so that the passage conducts fluid from the inlet to the outlet in a continuous and uninterrupted manner.

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25 2. A dispensing tip according to claim 1, wherein the second portion of the passage has a diameter in a range from about 0.003 inch to about 0.030 inch.

3. A dispensing tip according to claim 1, wherein the body is of ceramic material.

30 4. A dispensing tip according to claim 1, wherein the body is of injection molded ceramic material.

5. A dispensing tip according to claim 1, wherein
the body is of injection molded zirconia ceramic
material.

5 6. A dispensing tip according to claim 1, in
combination with a protective housing.

10 7. A dispensing tip according to claim 6, further
including a standoff member extending from the housing
for contacting a surface to which fluid is to be
dispensed for spacing the outlet of the tip from the
surface.

15 8. A dispensing tip according to claim 1, wherein
the body has a longitudinal axis and the first and
second passage portions extend along the axis and
wherein the diameter of a drop of fluid leaving the
outlet is directly proportional to the ratio of the
axial length of the second passage portion to the axial
20 length of the first passage portion.

25 9. A dispensing tip for use with the precision
dispensing apparatus for delivering controlled amounts
of fluid to a selected location comprising:

- a) a body of ceramic material having an inlet at
one end adapted for connection in fluid
communication with precision dispensing
apparatus and having an outlet at another end
30 of the body; and
- b) a fluid conducting passage in the body for
connecting the inlet to the outlet, the
passage being shaped to conduct fluid from the

inlet to the outlet in a continuous and uninterrupted manner.

10. A dispensing tip according to claim 9, wherein
5 the body is of injection molded ceramic material.

11. A dispensing tip according to claim 9, wherein
the body is of injection molded zirconia ceramic
material.

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12. A dispensing tip according to claim 9, wherein
the outlet has a diameter in the range from about 0.003
inch to about 0.030 inch.

15 13. A method of precision dispensing controlled
amounts of fluid to a selected location comprising:

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a) providing a dispensing tip having an inlet for
receiving fluid from precision dispensing
apparatus, an outlet for discharging fluid to
the location and a passage between the inlet
and outlet shaped to define a continuous and
uninterrupted fluid flow from the inlet to the
outlet;
- 25 b) introducing fluid to the inlet of the
dispensing tip;
- c) funnelling the flow of fluid from the inlet
toward the output;
- d) transitioning the flow to a constant cross-
section flow into the outlet; and
- 30 e) discharging the fluid from the outlet to the
location in a body of fluid having a dimension

in the range from about 0.003 inch to about 0.030 inch.